

APPLIANCE END FITTING

CLAIMS

I claim:

1. An appliance end fitting for connecting a gas operated appliance to a pressurized gas cylinder assembly, wherein the gas cylinder assembly includes an annular outlet having an automatic shutoff valve therein, the shutoff valve including a valve member that is biased to a normally closed position but is resiliently openable by inward pressure thereon to permit the release of gas from the cylinder assembly, the end fitting including an elongated body having a nipple at an inner end that fits into the cylinder outlet to open the shutoff valve and having an outer end that is attachable directly or indirectly in fluid communication with a gas operated appliance, the end fitting further including a connector that releasably connects the elongated body to the outlet in a position wherein the shutoff valve is opened by the inner end, the elongated body further having an interior opening therethrough that extends from an inlet in the nipple to an outlet in the outer end, the body interior opening serving as a gas conduit through the appliance end fitting, the elongated body being formed in two telescoping sections, an inner section that includes the nipple and an outer section that includes the outer end, the interior opening having an enlarged center portion between the inner and outer sections, the center portion having a valve seat at an outer end thereof, a floating valve member being positioned in the center portion and being movable into engagement with the valve seat, the valve member being normally biased away from engagement with the valve seat, gas flow from the tank urging the valve member toward the valve seat, excessive gas flow causing the valve member to overcome the bias to the point where the valve member engages the valve seat and restricts gas flow from the tank, thus serving as an excess flow control valve, the two sections of the body being fixed together in an extended axial position with respect to each other by

a heat activated material positioned between the two sections, the nipple extending inwardly far enough from the outer section of the body that when the body is drawn into engagement with the cylinder outlet by connection of the connector to the outlet, the automatic shutoff valve is opened by the nipple, excessive heat in the valve chamber causing the heat activated material to release so as to permit relative axial movement of the inner and outer valve body sections, the inner section thereafter collapsing with respect to the outer section at least to the point where the nipple fails to exert sufficient pressure on the shutoff valve to hold the automatic shutoff valve open, thus permitting the shutoff valve to close under excessive heat conditions.

2. An appliance end fitting as in claim 1, wherein an outer end of the inner section fits inside an inner end of the outer section and is positioned such that the collapse of the inner and outer sections of the body as a result of excessive heat conditions further causes the outer end of the inner section to engage the floating valve member and urge the valve member into a sealing engagement with the valve seat in the outer section, thus resulting in the closing of the valve in the body as well as the automatic shutoff valve in the cylinder outlet in response to excessive temperature conditions.

3. An appliance end fitting as in claim 1 wherein the connector is an internally threaded nut rotatably mounted at a predetermined axial position on the outer section of the elongated body, the nut being formed to threadably engage an external thread on the annular outlet of the gas cylinder assembly.

4. An appliance end fitting as in claim 3 wherein the end fitting is compatible with a standard Type-1 gas cylinder assembly connection.

5. An appliance end fitting as in claim 3 wherein the end fitting is compatible with a standard POL gas cylinder assembly connector.

6. An appliance end fitting as in claim 3 wherein the end fitting is compatible with a standard gas cylinder connection that includes an overfill protection device.

7. An appliance end fitting as in claim 1 wherein the floating valve member is a ball and the valve seat is shaped to fit against the ball in a flow restricting relationship therewith.

8. An appliance end fitting as in claim 1 wherein the inner and outer sections are fused together with a solder connection that melts at about 240°F to about 300°F.

9. An appliance end fitting as in claim 1 wherein the spring in the body is a compression coil spring and fits in an enlarged spring receptacle adjacent an outer side of the valve seat, the spring receptacle having an outer end that engages an outer end of the spring and restrains outward movement thereof, causing the spring to be compressed in response to engagement of an inner end thereof with an outwardly urged valve member.

10. An appliance end fitting as in claim 7 wherein the end fitting permits a minor amount of gas to flow through the end fitting even under excess flow conditions, such that the flow control valve opens quickly and easily when an excess flow condition abates.

11. An appliance end fitting as in claim 1 wherein the outer end of the inner section comprises an annular collar that telescopically fits over a stem on an inner end of the outer section, an internal surface at an inner end of an enlarged opening in the inner section engaging the floating valve member and moving it into engagement with the valve seat under excess flow conditions.